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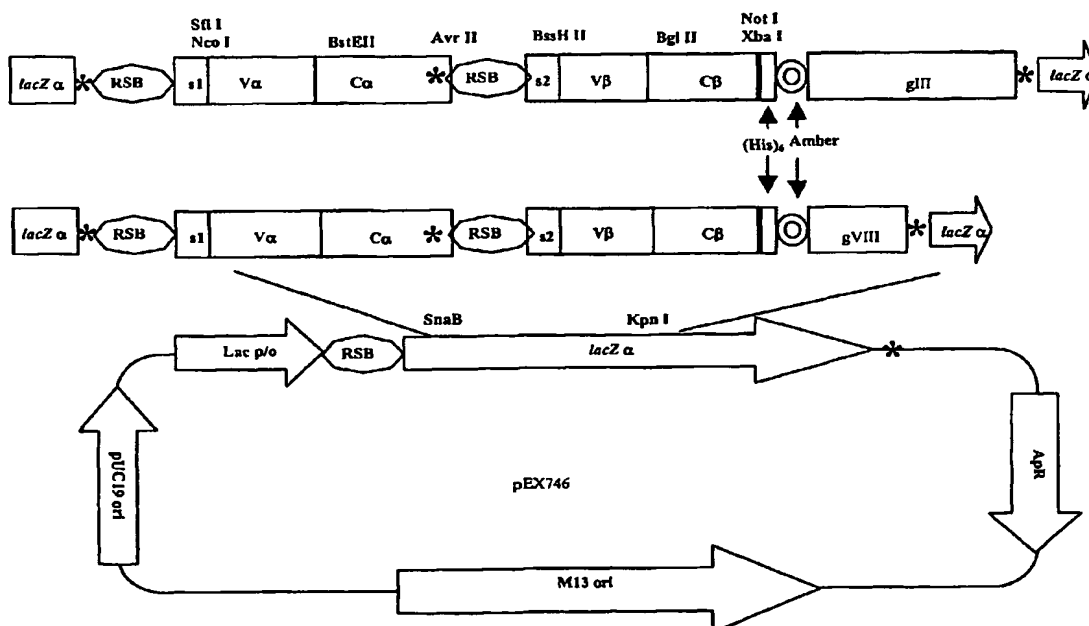
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[Continued on next page]

(54) Title: T CELL RECEPTOR DISPLAY



(57) Abstract: A proteinaceous particle, for example a bacteriophage, ribosome or cell, displaying on its surface a T-cell receptor (TCR). The displayed TCR is preferably a heterodimer having a non-native disulfide bond between constant domain residues. Such display particles may be used for the creation of diverse TCR libraries for the identification of high affinity TCRs. Several high affinities are disclosed.

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 03/04636

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C07K14/705 C12N15/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, EMBASE, BIOSIS, CHEM ABS Data, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevance to claim No.
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X	WO 98/39482 A (SUNOL MOLECULAR CORP) 11 September 1998 (1998-09-11) the whole document examples 1-20 -/--	1-59

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

National Application No

PCT/GB 03/04636

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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X	US 2002/058253 A1 (KRANZ DAVID M ET AL) 16 May 2002 (2002-05-16) the whole document examples 1-7	1-67, 76-85
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INTERNATIONAL SEARCH REPORT

National Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	REITER Y ET AL: "CONSTRUCTION OF A FUNCTIONAL DISULFIDE-STABILIZED TCR FV INDICATES THAT ANTIBODY AND TCR FV FRAMEWORKS ARE VERY SIMILAR IN STRUCTURE" IMMUNITY, CELL PRESS, US, vol. 2, no. 3, March 1995 (1995-03), pages 281-287, XP0009004075 ISSN: 1074-7613 the whole document page 283, left-hand column, lines 3-7; figures 1,4 -----	1-59
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National Application No
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X	----- HAUSMANN S ET AL: "Peptide recognition by two HLA-A2/Tax11-19-specific T cell clones in relationship to their MHC/peptide/TCR crystal structures." JOURNAL OF IMMUNOLOGY (BALTIMORE, MD. : 1950) 1 MAY 1999, vol. 162, no. 9, 1 May 1999 (1999-05-01), pages 5389-5397, XP002287146 ISSN: 0022-1767 the whole document figure 2 -----	1-68, 70-74, 76-85

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB 03/04 636

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International Application No. PCT/ GB 03 /04636

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

Invention 1: Claims 1-59

Proteinaceous particles displaying on its surface a T-cell receptor (TCR), libraries, nucleic acids, expression vectors/systems, cells and methods relating thereto.

1.1. claims: 1-59 (all partially)

A proteinaceous particle displaying a TCR, wherein the proteinaceous particle is a ribosome and the TCR is a scTCR.

1.2. claims: 1-59 (all partially)

A proteinaceous particle displaying a TCR, wherein the proteinaceous particle is a phage particle and the TCR is a human scTCR.

1.3. claims: 1-59 (all partially)

A proteinaceous particle displaying a TCR, wherein the proteinaceous particle is a phage particle and the TCR is a human dTCR.

1.4. claims: 1-59 (all partially)

A proteinaceous particle displaying a TCR, wherein the proteinaceous particle is a cell and the TCR is a human scTCR.

1.5. claims: 1-59 (all partially)

A proteinaceous particle displaying a TCR, wherein the proteinaceous particle is a cell and the TCR is a human dTCR.

1.6. claims: 1-59 (all partially)

A proteinaceous particle displaying a TCR, wherein the proteinaceous particle is a phage particle and the TCR is a non-human dTCR.

1.7. claims: 1-59 (all partially)

A proteinaceous particle displaying a TCR, wherein the proteinaceous particle is a cell and the TCR is a non-human dTCR.

1.8. claims: 1-59 (all partially)

A proteinaceous particle displaying a TCR, wherein the proteinaceous particle is a phage particle and the TCR has a disulfide bond which has no equivalent in native TCRs.

INTERNATIONAL SEARCH REPORT

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1.9. claims: 1-59 (all partially)

A proteinaceous particle displaying a TCR, wherein the proteinaceous particle is a cell and the TCR has a disulfide bond which has no equivalent in native TCRs.

1.10. claims: 1-59 (all partially)

A proteinaceous particle displaying a scTCR, wherein the scTCR has a disulfide bond which has no equivalent in native TCRs.

1.11. claims: 1-59 (all partially)

A proteinaceous particle displaying a dTCR,

Invention 2: Claims 60-85

TCRs, wherein the TCR is a scTCR comprising TCR alpha/delta and beta/gamma variable chain domains connected by a linker, and fused to a TCR constant domain or wherein the TCR is a dTCR polypeptide pair being linked by a disulfide bond which has no equivalent in native TCRs.

INTERNATIONAL SEARCH REPORT

 International Application No
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